

NOAA Mid-Atlantic Bight Benthic Community Assessment, 2006

SUBMITTED TO:

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INTRODUCTION

The NOAA Mid-Atlantic Bight project was sampled during 2006. One aspect of this study was benthic community characterization, which was accomplished via sample collection by National Oceanic and Atmospheric Administration (NOAA) personnel and laboratory and data analysis by Barry A. Vittor & Associates, Inc. (BVA).

METHODS

Sample Collection and Handling

A Young dredge (area = 0.04 m²) was used to collect bottom samples at each of 47 station locations. Samples were prescreened through 0.5 mm mesh sieves, by NOAA in the field and fixed in 10% formalin. The preserved sample fractions were transported to BVA's laboratory in Mobile, Alabama.

Sediment Analysis

Sediment texture was determined at half-phi intervals using the hydrometer technique for fractions smaller than 44 μ m and nested sieves for larger particle fractions. Texture parameters that were computed included percent gravel, sand, and silt /clay, median particle size, sorting coefficient and percent moisture. Total organic carbon (TOC) content was measured as ash-free dry weight expressed as a percentage.

Macroinfaunal Sample Analysis

In the laboratory of BVA, benthic samples were inventoried, rinsed gently through a 0.5 mm mesh sieve to remove preservatives and sediment, stained with Rose Bengal, and stored in 70% isopropanol solution until processing. Sample material (sediment, detritus, organisms) was placed in white enamel trays for sorting under Wild M-5A dissecting microscopes. All macroinvertebrates were carefully removed with forceps and placed in labeled glass vials containing 70% isopropanol. Each vial represented a major taxonomic group (*e.g.* Polychaeta, Mollusca, Arthropoda). All sorted macroinvertebrates were identified to the lowest practical identification level (LPIL), which in most cases was to

species level unless the specimen was a juvenile, damaged, or otherwise unidentifiable. The number of individuals of each taxon, excluding fragments, was recorded. A voucher collection was prepared, composed of representative individuals of each species not previously encountered in samples from the region.

DATA ANALYSIS

All data generated as a result of laboratory analysis of macroinfauna samples were first coded on data sheets. Enumeration data were entered for each species according to station and replicate. These data were reduced to a data summary report for each station, which included a taxonomic species list and benthic community parameters information. Archive data files of species identification and enumeration were prepared. The Quality Assurance/Quality Control (QA/QC) reports for the Mid-Atlantic Bight samples are given in the Appendix.

Assemblage Structure

Several numerical indices were chosen for analysis and interpretation of the macroinfaunal data. Selection was based primarily on the ability of the index to provide a meaningful summary of data, as well as the applicability of the index to the characterization of the benthic community. Infaunal abundance is reported as the total number of individuals per station and the total number of individuals per square meter (= density). Taxa richness is reported as the total number of taxa represented in a given station collection.

Taxa diversity, which is often related to the ecological stability and environmental "quality" of the benthos, was estimated by Shannon's Index (Pielou, 1966), according to the following formula:

$$H' = - \sum_{i=1}^s p_i (\ln p_i)$$

where, S = the number of taxa in the sample,

i = the i 'th taxa in the sample, and

p_i = the number of individuals of the i 'th taxa divided by the total number of individuals in the sample.

Taxa diversity was calculated using \ln ; however, diversity may also be calculated using \log_2 . Both methods of calculating diversity are common in the scientific literature. The taxa diversity calculated in this report using \ln , can be converted to \log_2 diversity by multiplying the \ln taxa diversity by 1.4427.

Taxa diversity within a given community is dependent upon the number of taxa present (taxa richness) and the distribution of all individuals among those taxa (equitability or evenness). In order to quantify and compare faunal equitability to taxa diversity for a given area, Pielou's Index J' (Pielou, 1966) was calculated as $J' = H'/\ln S$, where $\ln S = H'_{\max}$, or the maximum possible diversity, when all taxa are represented by the same number of individuals; thus, $J' = H' / H'_{\max}$.

BENTHIC COMMUNITY CHARACTERIZATION

Faunal Composition, Abundance, and Community Structure

Microsoft TMExcel spreadsheets are being provided separately to NOAA which include: raw data on taxa abundance and density, a complete taxonomic listing with station abundance and occurrence, a major taxa table with overall taxa abundance, and an assemblage parameter table including data on number of taxa, density, taxa diversity and taxa evenness by station.

A total of 12,155 organisms, representing 304 taxa, were identified from the 47 stations (Table 1). Polychaetes were the most numerous organisms present representing 42.1% of the total assemblage, followed in abundance by malacostracans (38.6%), bivalves (11.2%), oligochaetes (3.1%) and ophiuroids (1.3%). Polychaetes represented 45.7% of the total number of taxa followed by malacostracans (25.3%) and bivalves (13.2%) (Table 1). The percentage abundance of the major taxa at the 47 stations is given in Table 2 and

Figure 1. An annelid assemblage dominated 40 of the 47 stations, an arthropod assemblage dominated at 5 stations, and a mixed assemblage of annelids, arthropods and mollusks dominated the remaining stations (Figure 1).

The dominant taxon collected from the 47 stations was the malacostracan, *Ampelisca agassizi* and represented 15.51% of the total. Other dominant taxa included the polychaete, *Polygordius* (LPIL), the malacostracan, *Unicola irrorata*, and the polychaete, *Aricidea catherinae* representing 6.14%, 4.83% and 3.83% of the assemblage, respectively (Table 3). The most widely distributed taxa were the polychaete, *Polygordius* (LPIL) and the oligochaete family Tubificidae, each being found at 70% of the stations. The distribution of taxa representing >10% of the total assemblage at each station is given in Table 4.

Station taxa richness and abundance data are summarized for the 47 stations in Table 5 and Figures 2 and 3. Taxa richness ranged from 9 at Station MA06-027 to 60 at Station MA06-048 (Table 5; Figure 2). Macroinvertebrate densities ranged from 550.0 organisms·m² at Station MA-06-027 to 26,025 organisms·m² at Station MA06-028 (Table 5; Figure 3).

Taxa diversity and evenness for the 47 stations are given in Table 5 and Figures 4 and 5. Taxa diversity (H') varied considerably between stations and ranged from 1.59 at Station MA06-039 to 2.98 at Station MA06-035 (Table 5; Figure 4). Taxa evenness (J') also varied between stations and ranged from 0.43 at Station MA06-039 to 0.96 at Station MA06-015 (Table 5; Figure 5).

LITERATURE CITED

Pielou, E.C. 1966. The measurement of diversity in different types of biological collections.
Journal of Theoretical Biology 13:131-144.

Table 1. Summary of overall abundance of major benthic macroinfaunal taxonomic groups for the Mid-Atlantic Bight stations, 2006.

Taxa	Taxa	% Total	Individuals	% Total
Annelida				
Oligochaeta	2	0.7	380	3.1
Polychaeta	139	45.7	5,120	42.1
Mollusca				
Aplacophora	1	0.3	1	0.0
Bivalvia	40	13.2	1,367	11.2
Gastropoda	13	4.3	54	0.4
Arthropoda				
Arachnida	1	0.3	8	0.1
Malacostraca	77	25.3	4,692	38.6
Ostracoda	10	3.3	79	0.6
Echinodermata				
Asteroidea	3	1.0	4	0.0
Echinoidea	3	1.0	47	0.4
Holothuroidea	1	0.3	3	0.0
Ophiuroidea	3	1.0	156	1.3
Other Taxa	11	3.6	244	2.0
Total	304		12,155	

Table 2. Summary of abundance of major benthic macroinfaunal taxonomic groups by station for the Mid-Atlantic Bight stations, 2006.

Station	Taxa	Total No.		Total No.	
		Taxa	% Total	Individuals	% Total
MA06-001	Annelida	17	65.4	185	43.5
	Mollusca	3	11.5	6	1.4
	Arthropoda	4	15.4	216	50.8
	Echinodermata	1	3.8	13	3.1
	Other Taxa	1	3.8	5	1.2
	Total	26		425	
MA06-002	Annelida	11	57.9	12	48.0
	Mollusca	1	5.3	1	4.0
	Arthropoda	4	21.1	7	28.0
	Echinodermata	1	5.3	1	4.0
	Other Taxa	2	10.5	4	16.0
	Total	19		25	
MA06-003	Annelida	28	68.3	182	65.0
	Mollusca	0	0.0	0	0.0
	Arthropoda	10	24.4	95	33.9
	Echinodermata	1	2.4	1	0.4
	Other Taxa	2	4.9	2	0.7
	Total	41		280	
MA06-004	Annelida	13	54.2	35	19.4
	Mollusca	4	16.7	33	18.3
	Arthropoda	4	16.7	19	10.6
	Echinodermata	2	8.3	75	41.7
	Other Taxa	1	4.2	18	10.0
	Total	24		180	
MA06-005	Annelida	34	66.7	151	42.4
	Mollusca	4	7.8	7	2.0
	Arthropoda	11	21.6	193	54.2
	Echinodermata	0	0.0	0	0.0
	Other Taxa	2	3.9	5	1.4
	Total	51		356	
MA06-006	Annelida	25	61.0	137	70.3
	Mollusca	10	24.4	32	16.4
	Arthropoda	5	12.2	6	3.1
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	2.4	20	10.3
	Total	41		195	

Table 2 continued:

Station	Taxa	Total No.		Total No.	
		Taxa	% Total	Individuals	% Total
MA06-007	Annelida	14	45.2	109	57.4
	Mollusca	6	19.4	11	5.8
	Arthropoda	11	35.5	70	36.8
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	31		190	
MA06-008	Annelida	13	65.0	34	66.7
	Mollusca	1	5.0	1	2.0
	Arthropoda	4	20.0	6	11.8
	Echinodermata	2	10.0	10	19.6
	Other Taxa	0	0.0	0	0.0
	Total	20		51	
MA06-009	Annelida	30	69.8	126	81.3
	Mollusca	3	7.0	6	3.9
	Arthropoda	10	23.3	23	14.8
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	43		155	
MA06-010	Annelida	13	46.4	127	46.9
	Mollusca	3	10.7	13	4.8
	Arthropoda	12	42.9	131	48.3
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	28		271	
MA06-011	Annelida	2	15.4	15	22.7
	Mollusca	5	38.5	15	22.7
	Arthropoda	5	38.5	35	53.0
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	7.7	1	1.5
	Total	13		66	
MA06-012	Annelida	23	67.6	105	84.0
	Mollusca	5	14.7	9	7.2
	Arthropoda	4	11.8	7	5.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	2	5.9	4	3.2
	Total	34		125	
MA06-013	Annelida	9	47.4	36	41.4
	Mollusca	1	5.3	1	1.1
	Arthropoda	8	42.1	48	55.2
	Echinodermata	1	5.3	2	2.3
	Other Taxa	0	0.0	0	0.0
	Total	19		87	

Table 2 continued:

Station	Taxa	Total No.		Total No.	
		Taxa	% Total	Individuals	% Total
MA06-015	Annelida	12	66.7	24	75.0
	Mollusca	1	5.6	2	6.3
	Arthropoda	4	22.2	5	15.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	5.6	1	3.1
	Total	18		32	
MA06-017	Annelida	17	65.4	78	50.3
	Mollusca	5	19.2	16	10.3
	Arthropoda	3	11.5	40	25.8
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	3.8	21	13.5
	Total	26		155	
MA06-018	Annelida	22	56.4	333	75.2
	Mollusca	4	10.3	32	7.2
	Arthropoda	10	25.6	74	16.7
	Echinodermata	0	0.0	0	0.0
	Other Taxa	3	7.7	4	0.9
	Total	39		443	
MA06-019	Annelida	31	68.9	191	57.4
	Mollusca	4	8.9	23	6.9
	Arthropoda	10	22.2	119	35.7
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	45		333	
MA06-020	Annelida	13	25.5	53	3.4
	Mollusca	13	25.5	351	22.8
	Arthropoda	24	47.1	1132	73.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	2.0	1	0.1
	Total	51		1537	
MA06-021	Annelida	18	60.0	55	65.5
	Mollusca	3	10.0	5	6.0
	Arthropoda	7	23.3	19	22.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	2	6.7	5	6.0
	Total	30		84	
MA06-022	Annelida	27	56.3	298	80.1
	Mollusca	5	10.4	18	4.8
	Arthropoda	13	27.1	39	10.5
	Echinodermata	0	0.0	0	0.0
	Other Taxa	3	6.3	17	4.6
	Total	48		372	

Table 2 continued:

Station	Taxa	Total No.		Total No.	
		Taxa	% Total	Individuals	% Total
MA06-023	Annelida	7	58.3	14	46.7
	Mollusca	0	0.0	0	0.0
	Arthropoda	4	33.3	14	46.7
	Echinodermata	1	8.3	2	6.7
	Other Taxa	0	0.0	0	0.0
	Total	12		30	
MA06-024	Annelida	7	70.0	13	31.7
	Mollusca	0	0.0	0	0.0
	Arthropoda	2	20.0	15	36.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	10.0	13	31.7
	Total	10		41	
MA06-025	Annelida	20	62.5	259	79.0
	Mollusca	2	6.3	3	0.9
	Arthropoda	6	18.8	48	14.6
	Echinodermata	2	6.3	15	4.6
	Other Taxa	2	6.3	3	0.9
	Total	32		328	
MA06-026	Annelida	19	73.1	73	91.3
	Mollusca	5	19.2	5	6.3
	Arthropoda	1	3.8	1	1.3
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	3.8	1	1.3
	Total	26		80	
MA06-027	Annelida	3	33.3	3	13.6
	Mollusca	2	22.2	6	27.3
	Arthropoda	4	44.4	13	59.1
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	9		22	
MA06-028	Annelida	31	53.4	238	22.9
	Mollusca	8	13.8	29	2.8
	Arthropoda	17	29.3	766	73.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	2	3.4	8	0.8
	Total	58		1041	
MA06-029	Annelida	3	27.3	6	10.0
	Mollusca	5	45.5	10	16.7
	Arthropoda	1	9.1	11	18.3
	Echinodermata	2	18.2	33	55.0
	Other Taxa	0	0.0	0	0.0
	Total	11		60	

Table 2 continued:

Station	Taxa	Total No.		Total No.	
		Taxa	% Total	Individuals	% Total
MA06-031	Annelida	16	45.7	148	67.0
	Mollusca	5	14.3	8	3.6
	Arthropoda	14	40.0	65	29.4
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	35		221	
MA06-032	Annelida	34	63.0	146	28.9
	Mollusca	3	5.6	8	1.6
	Arthropoda	15	27.8	348	68.9
	Echinodermata	0	0.0	0	0.0
	Other Taxa	2	3.7	3	0.6
	Total	54		505	
MA06-033	Annelida	12	75.0	18	45.0
	Mollusca	0	0.0	0	0.0
	Arthropoda	4	25.0	22	55.0
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	16		40	
MA06-034	Annelida	13	33.3	41	13.1
	Mollusca	6	15.4	28	8.9
	Arthropoda	19	48.7	244	77.7
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	2.6	1	0.3
	Total	39		314	
MA06-035	Annelida	30	71.4	113	73.9
	Mollusca	1	2.4	1	0.7
	Arthropoda	5	11.9	31	20.3
	Echinodermata	3	7.1	4	2.6
	Other Taxa	3	7.1	4	2.6
	Total	42		153	
MA06-036	Annelida	22	71.0	212	75.2
	Mollusca	1	3.2	2	0.7
	Arthropoda	6	19.4	65	23.0
	Echinodermata	1	3.2	1	0.4
	Other Taxa	1	3.2	2	0.7
	Total	31		282	
MA06-037	Annelida	8	57.1	16	45.7
	Mollusca	4	28.6	8	22.9
	Arthropoda	1	7.1	1	2.9
	Echinodermata	1	7.1	10	28.6
	Other Taxa	0	0.0	0	0.0
	Total	14		35	

Table 2 continued:

Station	Taxa	Total No.		Total No.	
		Taxa	% Total	Individuals	% Total
MA06-038	Annelida	5	31.3	9	9.8
	Mollusca	3	18.8	7	7.6
	Arthropoda	7	43.8	73	79.3
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	6.3	3	3.3
	Total	16		92	
MA06-039	Annelida	24	60.0	87	21.2
	Mollusca	6	15.0	17	4.1
	Arthropoda	6	15.0	295	72.0
	Echinodermata	2	5.0	2	0.5
	Other Taxa	2	5.0	9	2.2
	Total	40		410	
MA06-040	Annelida	24	72.7	746	94.1
	Mollusca	4	12.1	18	2.3
	Arthropoda	4	12.1	21	2.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	3.0	8	1.0
	Total	33		793	
MA06-041	Annelida	20	69.0	113	66.5
	Mollusca	2	6.9	2	1.2
	Arthropoda	7	24.1	55	32.4
	Echinodermata	0	0.0	0	0.0
	Other Taxa	0	0.0	0	0.0
	Total	29		170	
MA06-042	Annelida	13	41.9	263	36.2
	Mollusca	7	22.6	394	54.2
	Arthropoda	9	29.0	50	6.9
	Echinodermata	1	3.2	1	0.1
	Other Taxa	1	3.2	19	2.6
	Total	31		727	
MA06-043	Annelida	13	65.0	90	82.6
	Mollusca	2	10.0	3	2.8
	Arthropoda	3	15.0	7	6.4
	Echinodermata	1	5.0	1	0.9
	Other Taxa	1	5.0	8	7.3
	Total	20		109	
MA06-044	Annelida	10	66.7	15	31.9
	Mollusca	2	13.3	8	17.0
	Arthropoda	1	6.7	4	8.5
	Echinodermata	2	13.3	20	42.6
	Other Taxa	0	0.0	0	0.0
	Total	15		47	

Table 2 continued:

Station	Taxa	Total No.		Total No.	
		Taxa	% Total	Individuals	% Total
MA06-045	Annelida	21	72.4	165	83.8
	Mollusca	0	0.0	0	0.0
	Arthropoda	6	20.7	16	8.1
	Echinodermata	1	3.4	1	0.5
	Other Taxa	1	3.4	15	7.6
	Total	29		197	
MA06-047	Annelida	15	48.4	89	26.9
	Mollusca	11	35.5	214	64.7
	Arthropoda	3	9.7	14	4.2
	Echinodermata	0	0.0	0	0.0
	Other Taxa	2	6.5	14	4.2
	Total	31		331	
MA06-048	Annelida	26	43.3	125	28.1
	Mollusca	8	13.3	52	11.7
	Arthropoda	22	36.7	247	55.5
	Echinodermata	1	1.7	17	3.8
	Other Taxa	3	5.0	4	0.9
	Total	60		445	
MA06-049	Annelida	7	33.3	38	48.1
	Mollusca	4	19.0	14	17.7
	Arthropoda	9	42.9	21	26.6
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	4.8	6	7.6
	Total	21		79	
MA06-050	Annelida	18	85.7	158	93.5
	Mollusca	1	4.8	3	1.8
	Arthropoda	1	4.8	5	3.0
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	4.8	3	1.8
	Total	21		169	
MA06-090	Annelida	7	58.3	16	22.2
	Mollusca	0	0.0	0	0.0
	Arthropoda	4	33.3	43	59.7
	Echinodermata	0	0.0	0	0.0
	Other Taxa	1	8.3	13	18.1
	Total	12		72	

Table 3. Distribution and abundance of benthic macroinfaunal taxa for the Mid-Atlantic Bight stations, 2006.

Taxa	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	% Station Occurrence
<i>Ampelisca agassizi</i>	Art	Mala	1885	15.51	15.51	9	19
<i>Polygordius</i> (LPIL)	Ann	Poly	746	6.14	21.65	33	70
<i>Unciola irrorata</i>	Art	Mala	587	4.83	26.47	21	45
<i>Aricidea catherinae</i>	Ann	Poly	465	3.83	30.30	21	45
<i>Tanaissus psammophilus</i>	Art	Mala	402	3.31	33.61	26	55
<i>Spiophanes bombyx</i>	Ann	Poly	368	3.03	36.64	22	47
Maldanidae (LPIL)	Ann	Poly	339	2.79	39.42	31	66
<i>Nucula proxima</i>	Mol	Biva	326	2.68	42.11	9	19
Tubificidae (LPIL)	Ann	Olig	320	2.63	44.74	33	70
<i>Exogone hebes</i>	Ann	Poly	295	2.43	47.17	21	45
<i>Goniadella gracilis</i>	Ann	Poly	277	2.28	49.44	17	36
<i>Chone</i> (LPIL)	Ann	Poly	243	2.00	51.44	15	32
<i>Leptocheirus pinguis</i>	Art	Mala	239	1.97	53.41	7	15
<i>Rhepoxynius hudsoni</i>	Art	Mala	202	1.66	55.07	24	51
<i>Apoprionospio pygmaea</i>	Ann	Poly	183	1.51	56.58	4	9
<i>Tellina</i> (LPIL)	Mol	Biva	165	1.36	57.94	11	23
Cirratulidae (LPIL)	Ann	Poly	162	1.33	59.27	27	57
<i>Protohaustorius wigleyi</i>	Art	Mala	157	1.29	60.56	11	23
<i>Solemya velum</i>	Mol	Biva	148	1.22	61.78	2	4
<i>Erichthonius brasiliensis</i>	Art	Mala	142	1.17	62.95	6	13
<i>Ampelisca</i> (LPIL)	Art	Mala	140	1.15	64.10	8	17
<i>Rhynchocoela</i> (LPIL)	Rhy	-	135	1.11	65.21	23	49
Aricidea (LPIL)	Ann	Poly	115	0.95	66.15	25	53
Bivalvia (LPIL)	Mol	Biva	108	0.89	67.04	28	60
<i>Scalibregma inflatum</i>	Ann	Poly	106	0.87	67.91	20	43
<i>Protohaustorius sp. B</i>	Art	Mala	103	0.85	68.76	1	2
<i>Tellina agilis</i>	Mol	Biva	98	0.81	69.57	3	6
<i>Unciola</i> (LPIL)	Art	Mala	94	0.77	70.34	9	19
<i>Astarte sp. B</i>	Mol	Biva	92	0.76	71.10	1	2
<i>Lumbrinerides acuta</i>	Ann	Poly	90	0.74	71.84	11	23
<i>Pitar morrhuanus</i>	Mol	Biva	89	0.73	72.57	2	4
<i>Euchone incolor</i>	Ann	Poly	88	0.72	73.29	8	17
Amphiuridae (LPIL)	Ech	Ophi	83	0.68	73.98	2	4
<i>Byblis serrata</i>	Art	Mala	77	0.63	74.61	14	30
Ampharetidae (LPIL)	Ann	Poly	74	0.61	75.22	19	40
<i>Aricidea wassi</i>	Ann	Poly	68	0.56	75.78	9	19
Nephtyidae (LPIL)	Ann	Poly	68	0.56	76.34	24	51
<i>Acanthohaustorius millsi</i>	Art	Mala	66	0.54	76.88	4	9
<i>Levinsenia gracilis</i>	Ann	Poly	63	0.52	77.40	7	15
<i>Parapionosyllis longicirrata</i>	Ann	Poly	63	0.52	77.92	12	26
<i>Cirrophorus ilvana</i>	Ann	Poly	62	0.51	78.43	5	11
Enchytraeidae (LPIL)	Ann	Olig	60	0.49	78.92	14	30
<i>Leitoscoloplos</i> (LPIL)	Ann	Poly	56	0.46	79.38	10	21
<i>Scoletoma verrilli</i>	Ann	Poly	56	0.46	79.84	13	28
<i>Terebellides stroemi</i>	Ann	Poly	55	0.45	80.30	4	9
Lysianassidae (LPIL)	Art	Mala	49	0.40	80.70	3	6
<i>Crassikorophium crassicorne</i>	Art	Mala	47	0.39	81.09	3	6
Spionidae (LPIL)	Ann	Poly	46	0.38	81.46	12	26
<i>Echinarachnius parma</i>	Ech	Echi	44	0.36	81.83	9	19
Lumbrineridae (LPIL)	Ann	Poly	44	0.36	82.19	14	30
<i>Aricidea cerrutii</i>	Ann	Poly	41	0.34	82.53	4	9
<i>Nucula delphinodonta</i>	Mol	Biva	40	0.33	82.85	2	4
<i>Asabellides oculata</i>	Ann	Poly	39	0.32	83.18	4	9
<i>Exogone rolandi</i>	Ann	Poly	39	0.32	83.50	4	9

Table 3 continued:

Taxa	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	% Station Occurrence
Ophiuroidea (LPIL)	Ech	Ophi	39	0.32	83.82	5	11
<i>Ninoe nigripes</i>	Ann	Poly	38	0.31	84.13	7	15
<i>Caulleriella</i> sp. J	Ann	Poly	36	0.30	84.43	12	26
<i>Amphipholis squamata</i>	Ech	Ophi	34	0.28	84.71	2	4
Sipuncula (LPIL)	Sip	-	34	0.28	84.99	6	13
Pellucistoma (LPIL)	Art	Ostr	30	0.25	85.23	7	15
<i>Tharyx acutus</i>	Ann	Poly	30	0.25	85.48	12	26
<i>Ensis directus</i>	Mol	Biva	29	0.24	85.72	5	11
<i>Photis</i> (LPIL)	Art	Mala	29	0.24	85.96	4	9
Haustoriidae (LPIL)	Art	Mala	28	0.23	86.19	7	15
<i>Leitoscoloplos acutus</i>	Ann	Poly	27	0.22	86.41	3	6
<i>Monticellina baptistae</i>	Ann	Poly	27	0.22	86.63	6	13
<i>Periploma papyratum</i>	Mol	Biva	27	0.22	86.85	6	13
<i>Axiothella mucosa</i>	Ann	Poly	26	0.21	87.07	7	15
<i>Crenella decussata</i>	Mol	Biva	26	0.21	87.28	7	15
<i>Harpinia propinqua</i>	Art	Mala	26	0.21	87.49	4	9
<i>Nucula tenuis</i>	Mol	Biva	26	0.21	87.71	2	4
Paraonidae (LPIL)	Ann	Poly	26	0.21	87.92	10	21
<i>Lumbrineris</i> (LPIL)	Ann	Poly	24	0.20	88.12	4	9
Capitellidae (LPIL)	Ann	Poly	23	0.19	88.31	7	15
<i>Pseudunciola obliquua</i>	Art	Mala	23	0.19	88.50	6	13
<i>Eudorella pusilla</i>	Art	Mala	22	0.18	88.68	4	9
<i>Parorgia caeca</i>	Ann	Poly	22	0.18	88.86	13	28
Ascidacea (LPIL)	Cho	Asci	21	0.17	89.03	2	4
<i>Spio filicornis</i>	Ann	Poly	21	0.17	89.21	1	2
Aoridae (LPIL)	Art	Mala	20	0.16	89.37	5	11
<i>Hesionura elongata</i>	Ann	Poly	20	0.16	89.54	2	4
Mesodesmatidae (LPIL)	Mol	Biva	20	0.16	89.70	2	4
<i>Thyasira trisinuata</i>	Mol	Biva	20	0.16	89.86	3	6
<i>Clymenella torquata</i>	Ann	Poly	19	0.16	90.02	6	13
<i>Yoldia limatula</i>	Mol	Biva	19	0.16	90.18	3	6
<i>Aglaophamus circinata</i>	Ann	Poly	18	0.15	90.32	7	15
<i>Diastylis quadrispinosa</i>	Art	Mala	18	0.15	90.47	8	17
<i>Drilonereis longa</i>	Ann	Poly	18	0.15	90.62	11	23
<i>Phoxocephalus holbolli</i>	Art	Mala	18	0.15	90.77	8	17
<i>Psammonyx nobilis</i>	Art	Mala	18	0.15	90.92	1	2
<i>Chiridotea arenicola</i>	Art	Mala	17	0.14	91.06	3	6
<i>Dulichia porrecta</i>	Art	Mala	17	0.14	91.20	2	4
<i>Hemipodus roseus</i>	Ann	Poly	17	0.14	91.34	4	9
<i>Notomastus latericeus</i>	Ann	Poly	16	0.13	91.47	5	11
Ostracoda (LPIL)	Art	Ostr	16	0.13	91.60	1	2
Phoxocephalidae (LPIL)	Art	Mala	16	0.13	91.73	5	11
<i>Scoletoma acicularum</i>	Ann	Poly	16	0.13	91.86	11	23
<i>Cossura</i> (LPIL)	Ann	Poly	15	0.12	91.99	4	9
<i>Monticellina dorsobranchialis</i>	Ann	Poly	15	0.12	92.11	9	19
<i>Orchomenella minuta</i>	Art	Mala	15	0.12	92.23	1	2
Phoronis (LPIL)	Pho	-	15	0.12	92.36	2	4
<i>Branchiostoma</i> (LPIL)	Cho	Lept	14	0.12	92.47	1	2
<i>Exogone verugera</i>	Ann	Poly	14	0.12	92.59	3	6
<i>Nephtys</i> (LPIL)	Ann	Poly	14	0.12	92.70	3	6
<i>Ophelina acuminata</i>	Ann	Poly	14	0.12	92.82	3	6
Terebellidae (LPIL)	Ann	Poly	14	0.12	92.93	8	17
<i>Ampharete finmarchica</i>	Ann	Poly	13	0.11	93.04	10	21
<i>Bathyporeia quoddyensis</i>	Art	Mala	13	0.11	93.15	4	9
<i>Euspira heros</i>	Mol	Gast	13	0.11	93.25	5	11
<i>Gammarus annulatus</i>	Art	Mala	13	0.11	93.36	2	4

Table 3 continued:

Taxa	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	% Station Occurrence
<i>Haplocytheridea setipunctata</i>	Art	Ostr	13	0.11	93.47	9	19
Tellinidae (LPIL)	Mol	Biva	13	0.11	93.57	2	4
<i>Cirrophorus</i> (LPIL)	Ann	Poly	12	0.10	93.67	8	17
<i>Galathowenia oculata</i>	Ann	Poly	12	0.10	93.77	2	4
<i>Notomastus</i> (LPIL)	Ann	Poly	12	0.10	93.87	2	4
<i>Politolana concharum</i>	Art	Mala	12	0.10	93.97	10	21
<i>Pseudoleptocuma minor</i>	Art	Mala	12	0.10	94.07	5	11
Syllidae (LPIL)	Ann	Poly	12	0.10	94.17	9	19
<i>Ampelisca verrilli</i>	Art	Mala	11	0.09	94.26	4	9
Amphipoda (LPIL)	Art	Mala	11	0.09	94.35	3	6
<i>Brada villosa</i>	Ann	Poly	11	0.09	94.44	3	6
<i>Chiridotea tuftsi</i>	Art	Mala	11	0.09	94.53	2	4
<i>Diastylis polita</i>	Art	Mala	11	0.09	94.62	2	4
<i>Ophelina cylindricaudata</i>	Ann	Poly	11	0.09	94.71	3	6
Sabellidae (LPIL)	Ann	Poly	11	0.09	94.80	8	17
<i>Astarte undata</i>	Mol	Biva	10	0.08	94.88	5	11
<i>Crenella glandula</i>	Mol	Biva	10	0.08	94.97	2	4
<i>Leptocheirus</i> (LPIL)	Art	Mala	10	0.08	95.05	1	2
<i>Sphaerosyllis</i> (LPIL)	Ann	Poly	10	0.08	95.13	4	9
<i>Astarte castanea</i>	Mol	Biva	9	0.07	95.20	4	9
Gastropoda (LPIL)	Mol	Gast	9	0.07	95.28	6	13
Mytilidae (LPIL)	Mol	Biva	9	0.07	95.35	3	6
<i>Nucula</i> (LPIL)	Mol	Biva	9	0.07	95.43	5	11
<i>Phascolion strombi</i>	Sip	-	9	0.07	95.50	6	13
<i>Scoletoma</i> (LPIL)	Ann	Poly	9	0.07	95.57	5	11
Thyasiridae (LPIL)	Mol	Biva	9	0.07	95.65	4	9
<i>Aricidea suecica</i>	Ann	Poly	8	0.07	95.71	2	4
<i>Casco bigelowi</i>	Art	Mala	8	0.07	95.78	4	9
Corophiidae (LPIL)	Art	Mala	8	0.07	95.85	5	11
<i>Cyathura polita</i>	Art	Mala	8	0.07	95.91	4	9
<i>Dipolydora socialis</i>	Ann	Poly	8	0.07	95.98	3	6
Halacaridae (LPIL)	Art	Arac	8	0.07	96.04	2	4
<i>Hippomedon serratus</i>	Art	Mala	8	0.07	96.11	4	9
<i>Ninoe</i> (LPIL)	Ann	Poly	8	0.07	96.17	3	6
Phyllodocidae (LPIL)	Ann	Poly	8	0.07	96.24	4	9
<i>Sigaloa arenicola</i>	Ann	Poly	8	0.07	96.31	4	9
<i>Streptosyllis arenae</i>	Ann	Poly	8	0.07	96.37	5	11
<i>Aeginina longicornis</i>	Art	Mala	7	0.06	96.43	2	4
<i>Brania wellfleetensis</i>	Ann	Poly	7	0.06	96.49	4	9
<i>Diastylis</i> (LPIL)	Art	Mala	7	0.06	96.54	4	9
<i>Eriopisa elongata</i>	Art	Mala	7	0.06	96.60	3	6
<i>Glycera americana</i>	Ann	Poly	7	0.06	96.66	1	2
Glyceridae (LPIL)	Ann	Poly	7	0.06	96.72	3	6
<i>Harbansus bowenae</i>	Art	Ostr	7	0.06	96.77	2	4
<i>Ilyanassa trivittata</i>	Mol	Gast	7	0.06	96.83	1	2
Ischyroceridae (LPIL)	Art	Mala	7	0.06	96.89	3	6
<i>Nephtys incisa</i>	Ann	Poly	7	0.06	96.95	5	11
<i>Polycirrus eximius</i>	Ann	Poly	7	0.06	97.01	3	6
<i>Scoloplos</i> (LPIL)	Ann	Poly	7	0.06	97.06	3	6
<i>Astarte borealis</i>	Mol	Biva	6	0.05	97.11	2	4
<i>Cyclocardia borealis</i>	Mol	Biva	6	0.05	97.16	3	6
<i>Edotia triloba</i>	Art	Mala	6	0.05	97.21	2	4
<i>Lucinoma filosum</i>	Mol	Biva	6	0.05	97.26	1	2
<i>Onuphis eremita oculata</i>	Ann	Poly	6	0.05	97.31	2	4
Opheliidae (LPIL)	Ann	Poly	6	0.05	97.36	3	6
<i>Pettiboneia duofurca</i>	Ann	Poly	6	0.05	97.41	3	6

Table 3 continued:

Taxa	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	% Station Occurrence
<i>Pholoe minuta</i>	Ann	Poly	6	0.05	97.46	6	13
<i>Ptilanthura tenuis</i>	Art	Mala	6	0.05	97.51	4	9
<i>Scoloplos armiger</i>	Ann	Poly	6	0.05	97.56	4	9
<i>Spio</i> (LPIL)	Ann	Poly	6	0.05	97.61	3	6
<i>Syllis</i> sp. I	Ann	Poly	6	0.05	97.66	1	2
<i>Acanthohaustorius shoemakeri</i>	Art	Mala	5	0.04	97.70	1	2
<i>Alvania pelagica</i>	Mol	Gast	5	0.04	97.74	2	4
<i>Cerastoderma pinnulatum</i>	Mol	Biva	5	0.04	97.78	4	9
Isaeidae (LPIL)	Art	Mala	5	0.04	97.82	2	4
<i>Leitoscoloplos robustus</i>	Ann	Poly	5	0.04	97.86	3	6
Lineidae (LPIL)	Rhy	Anop	5	0.04	97.90	3	6
<i>Mooreonuphis pallidula</i>	Ann	Poly	5	0.04	97.94	2	4
Nuculanidae (LPIL)	Mol	Biva	5	0.04	97.98	2	4
<i>Pandora</i> (LPIL)	Mol	Biva	5	0.04	98.03	5	11
Podocopida (LPIL)	Art	Ostr	5	0.04	98.07	4	9
<i>Spisula solidissima</i>	Mol	Biva	5	0.04	98.11	3	6
<i>Tellina tenella</i>	Mol	Biva	5	0.04	98.15	1	2
<i>Travisia carnea</i>	Ann	Poly	5	0.04	98.19	4	9
<i>Turbonilla</i> (LPIL)	Mol	Gast	5	0.04	98.23	2	4
<i>Bathyporeia parkeri</i>	Art	Mala	4	0.03	98.26	2	4
<i>Byblis</i> (LPIL)	Art	Mala	4	0.03	98.30	1	2
Carditidae (LPIL)	Mol	Biva	4	0.03	98.33	3	6
Hamineidae (LPIL)	Mol	Gast	4	0.03	98.36	1	2
<i>Melinna maculata</i>	Ann	Poly	4	0.03	98.40	1	2
<i>Parasterope pollex</i>	Art	Ostr	4	0.03	98.43	3	6
<i>Photis macrocoxa</i>	Art	Mala	4	0.03	98.46	3	6
<i>Pisone remota</i>	Ann	Poly	4	0.03	98.49	2	4
<i>Scolecopsis texana</i>	Ann	Poly	4	0.03	98.53	1	2
Semelidae (LPIL)	Mol	Biva	4	0.03	98.56	1	2
<i>Tectonatica pusilla</i>	Mol	Gast	4	0.03	98.59	2	4
Actiniaria (LPIL)	Cni	Anth	3	0.02	98.62	3	6
<i>Ampelisca abdita</i>	Art	Mala	3	0.02	98.64	1	2
Aphroditidae (LPIL)	Ann	Poly	3	0.02	98.67	2	4
Bryozoa (LPIL)	Bry	-	3	0.02	98.69	1	2
<i>Capitella jonesi</i>	Ann	Poly	3	0.02	98.72	2	4
<i>Exogone</i> (LPIL)	Ann	Poly	3	0.02	98.74	2	4
<i>Glycera robusta</i>	Ann	Poly	3	0.02	98.77	2	4
Holothuroidea (LPIL)	Ech	Holo	3	0.02	98.79	3	6
<i>Kinbergonuphis</i> (LPIL)	Ann	Poly	3	0.02	98.82	2	4
<i>Magelona papillicornis</i>	Ann	Poly	3	0.02	98.84	1	2
<i>Nephtys picta</i>	Ann	Poly	3	0.02	98.86	3	6
<i>Nereis grayi</i>	Ann	Poly	3	0.02	98.89	2	4
Orbiniidae (LPIL)	Ann	Poly	3	0.02	98.91	2	4
<i>Siliqua costata</i>	Mol	Biva	3	0.02	98.94	2	4
<i>Skaptopus brychius</i>	Art	Mala	3	0.02	98.96	1	2
<i>Sthenelais limicola</i>	Ann	Poly	3	0.02	98.99	2	4
<i>Tubulanus</i> (LPIL)	Rhy	Anop	3	0.02	99.01	2	4
<i>Americhelidium americanum</i>	Art	Mala	2	0.02	99.03	2	4
Asteroidea (LPIL)	Ech	Aste	2	0.02	99.05	1	2
<i>Balanoglossus</i> (LPIL)	Hem	Ente	2	0.02	99.06	1	2
Buccinidae (LPIL)	Mol	Gast	2	0.02	99.08	2	4
<i>Carazziella hobsonae</i>	Ann	Poly	2	0.02	99.10	1	2
Chiridotea (LPIL)	Art	Mala	2	0.02	99.11	1	2
Dorvilleidae (LPIL)	Ann	Poly	2	0.02	99.13	2	4
Echinoidea (LPIL)	Ech	Echi	2	0.02	99.14	2	4
Eunicidae (LPIL)	Ann	Poly	2	0.02	99.16	1	2
Goniadidae (LPIL)	Ann	Poly	2	0.02	99.18	2	4

Table 3 continued:

Taxa	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	% Station Occurrence
<i>Harmothoe imbricata</i>	Ann	Poly	2	0.02	99.19	1	2
Idoteidae (LPIL)	Art	Mala	2	0.02	99.21	2	4
<i>Listriella barnardi</i>	Art	Mala	2	0.02	99.23	2	4
<i>Lyonsia hyalina</i>	Mol	Biva	2	0.02	99.24	1	2
<i>Mediomastus</i> (LPIL)	Ann	Poly	2	0.02	99.26	2	4
<i>Metopella angusta</i>	Art	Mala	2	0.02	99.28	1	2
<i>Mysella planulata</i>	Mol	Biva	2	0.02	99.29	2	4
Oedicerotidae (LPIL)	Art	Mala	2	0.02	99.31	2	4
<i>Pagurus</i> (LPIL)	Art	Mala	2	0.02	99.33	2	4
<i>Paraonis fulgens</i>	Ann	Poly	2	0.02	99.34	1	2
<i>Phyllodoce</i> (LPIL)	Ann	Poly	2	0.02	99.36	2	4
<i>Phyllodoce mucosa</i>	Ann	Poly	2	0.02	99.37	1	2
<i>Prionospio</i> (LPIL)	Ann	Poly	2	0.02	99.39	2	4
Sigalionidae (LPIL)	Ann	Poly	2	0.02	99.41	2	4
<i>Solen viridis</i>	Mol	Biva	2	0.02	99.42	1	2
Solenidae (LPIL)	Mol	Biva	2	0.02	99.44	1	2
Sphaerodoridae (LPIL)	Ann	Poly	2	0.02	99.46	1	2
<i>Spio limicola</i>	Ann	Poly	2	0.02	99.47	2	4
<i>Spiophanes</i> (LPIL)	Ann	Poly	2	0.02	99.49	1	2
<i>Actinocythereis</i> (LPIL)	Art	Ostr	1	0.01	99.50	1	2
<i>Ameroculodes edwardsi</i>	Art	Mala	1	0.01	99.51	1	2
<i>Anachis lafresnayi</i>	Mol	Gast	1	0.01	99.51	1	2
<i>Ancistrosyllis</i> (LPIL)	Ann	Poly	1	0.01	99.52	1	2
<i>Apistobranchnus tullbergi</i>	Ann	Poly	1	0.01	99.53	1	2
<i>Aplacophora</i> (LPIL)	Mol	Apl	1	0.01	99.54	1	2
<i>Aricidea taylori</i>	Ann	Poly	1	0.01	99.55	1	2
<i>Astropecten articulatus</i>	Ech	Aste	1	0.01	99.56	1	2
<i>Astropecten duplicatus</i>	Ech	Aste	1	0.01	99.56	1	2
Axiidae (LPIL)	Art	Mala	1	0.01	99.57	1	2
<i>Bathyporeia</i> (LPIL)	Art	Mala	1	0.01	99.58	1	2
<i>Campylaspis</i> (LPIL)	Art	Mala	1	0.01	99.59	1	2
<i>Campylaspis rubicunda</i>	Art	Mala	1	0.01	99.60	1	2
Cardiidae (LPIL)	Mol	Biva	1	0.01	99.61	1	2
Cerithiidae (LPIL)	Mol	Gast	1	0.01	99.61	1	2
<i>Chaetozone setosa</i>	Ann	Poly	1	0.01	99.62	1	2
<i>Cirrophorus branchiatus</i>	Ann	Poly	1	0.01	99.63	1	2
<i>Demonax micropthalmus</i>	Ann	Poly	1	0.01	99.64	1	2
Diastylidae (LPIL)	Art	Mala	1	0.01	99.65	1	2
<i>Diastylis sculpta</i>	Art	Mala	1	0.01	99.65	1	2
Echinarachnidae (LPIL)	Ech	Echi	1	0.01	99.66	1	2
<i>Eteone longa</i>	Ann	Poly	1	0.01	99.67	1	2
<i>Eusarsiella ozotothrix</i>	Art	Ostr	1	0.01	99.68	1	2
<i>Eusarsiella texana</i>	Art	Ostr	1	0.01	99.69	1	2
<i>Eusarsiella zostericola</i>	Art	Ostr	1	0.01	99.70	1	2
<i>Fimbriosthenelais</i> (LPIL)	Ann	Poly	1	0.01	99.70	1	2
<i>Glycera</i> (LPIL)	Ann	Poly	1	0.01	99.71	1	2
<i>Hartmania moorei</i>	Ann	Poly	1	0.01	99.72	1	2
<i>Leptostylis</i> (LPIL)	Art	Mala	1	0.01	99.73	1	2
Liljeborgiidae (LPIL)	Art	Mala	1	0.01	99.74	1	2
<i>Marginella</i> (LPIL)	Mol	Gast	1	0.01	99.74	1	2
<i>Melita dentata</i>	Art	Mala	1	0.01	99.75	1	2
Melitidae (LPIL)	Art	Mala	1	0.01	99.76	1	2
<i>Monticellina</i> (LPIL)	Ann	Poly	1	0.01	99.77	1	2
Nannastacidae (LPIL)	Art	Mala	1	0.01	99.78	1	2
Naticidae (LPIL)	Mol	Gast	1	0.01	99.79	1	2
<i>Nematoneis hebes</i>	Ann	Poly	1	0.01	99.79	1	2
Nereididae (LPIL)	Ann	Poly	1	0.01	99.80	1	2

Table 3 continued:

Taxa	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	% Station Occurrence
<i>Nereis pelagica</i>	Ann	Poly	1	0.01	99.81	1	2
<i>Notocirrus spiniferus</i>	Ann	Poly	1	0.01	99.82	1	2
<i>Nuculana</i> (LPIL)	Mol	Biva	1	0.01	99.83	1	2
Onuphidae (LPIL)	Ann	Poly	1	0.01	99.84	1	2
<i>Orbinia</i> (LPIL)	Ann	Poly	1	0.01	99.84	1	2
<i>Owenia fusiformis</i>	Ann	Poly	1	0.01	99.85	1	2
<i>Oxyurostylis smithi</i>	Art	Mala	1	0.01	99.86	1	2
Paguridae (LPIL)	Art	Mala	1	0.01	99.87	1	2
<i>Parahaustorius</i> (LPIL)	Art	Mala	1	0.01	99.88	1	2
<i>Pherusa</i> (LPIL)	Ann	Poly	1	0.01	99.88	1	2
Pholoidae (LPIL)	Ann	Poly	1	0.01	99.89	1	2
<i>Pitar</i> (LPIL)	Mol	Biva	1	0.01	99.90	1	2
Pleustidae (LPIL)	Art	Mala	1	0.01	99.91	1	2
<i>Politolana</i> (LPIL)	Art	Mala	1	0.01	99.92	1	2
<i>Polycirrus</i> (LPIL)	Ann	Poly	1	0.01	99.93	1	2
Polynoidae (LPIL)	Ann	Poly	1	0.01	99.93	1	2
<i>Potamilla neglecta</i>	Ann	Poly	1	0.01	99.94	1	2
<i>Protodorvillea kefersteini</i>	Ann	Poly	1	0.01	99.95	1	2
<i>Scoletoma fragilis</i>	Ann	Poly	1	0.01	99.96	1	2
<i>Sphaerodoridium claparedii</i>	Ann	Poly	1	0.01	99.97	1	2
<i>Spiochaetopterus oculus</i>	Ann	Poly	1	0.01	99.98	1	2
<i>Streptosyllis varians</i>	Ann	Poly	1	0.01	99.98	1	2
<i>Syllis</i> (LPIL)	Ann	Poly	1	0.01	99.99	1	2
Turridae (LPIL)	Mol	Gast	1	0.01	100.00	1	2

Taxa Key

Ann=Annelida

Olig=Oligochaeta

Poly=Polychaeta

Art=Arthropoda

Arac=Arachnida

Mala=Malacostraca

Ostr=Ostracoda

Bry=Bryozoa

Cho=Chordata

Asci=Asciacea

Lept=Leptocardia

Cni=Cnidaria

Anth=Anthozoa

Ech=Echinodermata

Aste=Asteroidea

Echi=Echinoidea

Holo=Holothuroidea

Ophi=Ophiuroidea

Hem=Hemichordata

Ente=Enteropneusta

Mol=Mollusca

Apla=Aplacophora

Biva=Bivalvia

Gast=Gastropoda

Pho=Phoronida

Rhy=Rhynchocoela

Anop=Anopla

Sip=Sipuncula

Table 4. Percentage abundance of dominant benthic macroinfaunal taxa (>10% of the total) for the Mid-Atlantic Bight stations, 2006.

Taxa	MA06-001	MA06-002	MA06-003	MA06-004	MA06-005	MA06-006	MA06-007	MA06-008	MA06-009
Annelida									
Oligochaeta									
Enchytraeidae (LPIL)									
Tubificidae (LPIL)						11.8			
Polychaeta									
<i>Apoprionospio pygmaea</i>									
<i>Aricidea</i> (LPIL)									
<i>Aricidea catherinae</i>									
<i>Aricidea cerrutii</i>						16.9			
<i>Aricidea wassi</i>									
<i>Chone</i> (LPIL)									11.0
Cirratulidae (LPIL)									
<i>Exogone hebes</i>			25.7						16.1
<i>Goniadella gracilis</i>									
<i>Leitoscoloplos acutus</i>									
<i>Lumbrinerides acuta</i>									
Maldanidae (LPIL)									
<i>Parapionosyllis longicirrata</i>	4.2								
<i>Polygordius</i> (LPIL)	23.8							11.8	
<i>Spio filicornis</i>									
<i>Spiophanes bombyx</i>							49.5		
Arthropoda									
Malacostraca									
<i>Acanthohaustorius millsii</i>									
<i>Ampelisca</i> (LPIL)					26.7				
<i>Ampelisca agassizi</i>					17.7				
<i>Crassicorophium crassicorne</i>							21.6		
<i>Erichthonius brasiliensis</i>									
<i>Gammarus annulatus</i>									
<i>Leptocheirus pinguis</i>									
Lysianassidae (LPIL)									
<i>Protohaustorius</i> sp. B									
<i>Protohaustorius wigleyi</i>									
<i>Psammonyx nobilis</i>									
<i>Pseudunciola obliquua</i>									
<i>Rhepoxynius hudsoni</i>		16.0							
<i>Tanaissius psammophilus</i>	49.6								
<i>Unciola</i> (LPIL)									
<i>Unciola irrorata</i>			13.2						

Table 4 continued:

Taxa	MA06-001	MA06-002	MA06-003	MA06-004	MA06-005	MA06-006	MA06-007	MA06-008	MA06-009
Echinodermata									
Echinoidea									
<i>Echinarachnius parma</i>								17.6	
Ophiuroidea									
<i>Amphipholis squamata</i>									
Amphiuridae (LPIL)				36.1					
Ophiuroidea (LPIL)									
Mollusca									
Bivalvia									
<i>Astarte</i> sp. B									
Bivalvia (LPIL)				14.4					
<i>Nucula proxima</i>									
<i>Periploma papyratium</i>									
<i>Pitar morrhuanus</i>									
<i>Solemya velum</i>									
<i>Tellina</i> (LPIL)									
<i>Tellina agilis</i>									
<i>Tellina tenella</i>									
Thyasiridae (LPIL)									
Rhynchocoela									
Rhynchocoela (LPIL)		12.0				10.3			
Sipuncula									
Sipuncula (LPIL)				10.0					

Table 4 continued:

Taxa	MA06-010	MA06-011	MA06-012	MA06-013	MA06-015	MA06-017	MA06-018	MA06-019	MA06-020	MA06-021
Annelida Oligochaeta Enchytraeidae (LPIL) Tubificidae (LPIL) Polychaeta <i>Apoprionospio pygmaea</i> <i>Aricidea</i> (LPIL) <i>Aricidea catherinae</i> <i>Aricidea cerrutii</i> <i>Aricidea wassi</i> <i>Chone</i> (LPIL) Cirratulidae (LPIL) <i>Exogone hebes</i> <i>Goniadella gracilis</i> <i>Leitoscoloplos acutus</i> <i>Lumbrinerides acuta</i> Maldanidae (LPIL) <i>Parapionosyllis longicirrata</i> <i>Polygordius</i> (LPIL) <i>Spio filicornis</i> <i>Spiophanes bombyx</i>			21.6				35.4			
	29.5	19.7		20.7	12.5					22.6
							22.1	27.0		
Arthropoda Malacostraca <i>Acanthohaustorius millsii</i> <i>Ampelisca</i> (LPIL) <i>Ampelisca agassizi</i> <i>Crassikorophium crassicorne</i> <i>Erichthonius brasiliensis</i> <i>Gammarus annulatus</i> <i>Leptocheirus pinguis</i> Lysianassidae (LPIL) <i>Protohaustorius</i> sp. B <i>Protohaustorius wigleyi</i> <i>Psammonyx nobilis</i> <i>Pseudunciola obliquua</i> <i>Rhepoxynius hudsoni</i> <i>Tanaissus psammophilus</i> <i>Unciola</i> (LPIL) <i>Unciola irrorata</i>								21.9	40.5	
	24.7								11.5	
		47.0		18.4		24.5				
				17.2						

Table 4 continued:

Taxa	MA06-033	MA06-034	MA06-035	MA06-036	MA06-037	MA06-038	MA06-039	MA06-040	MA06-041	MA06-042
Annelida										
Oligochaeta										
Enchytraeidae (LPIL)										
Tubificidae (LPIL)								23.1		
Polychaeta										
<i>Apoprionospio pygmaea</i>										
<i>Aricidea</i> (LPIL)										
<i>Aricidea catherinae</i>								43.6		
<i>Aricidea cerrutii</i>										
<i>Aricidea wassi</i>										
<i>Chone</i> (LPIL)										
Cirratulidae (LPIL)				16.3						
<i>Exogone hebes</i>		10.5						12.1	12.4	
<i>Goniadella gracilis</i>		17.6		35.8					24.1	
<i>Leitoscoloplos acutus</i>		15.0								
<i>Lumbrinerides acuta</i>										
Maldanidae (LPIL)						17.1				21.6
<i>Parapionosyllis longicirrata</i>										
<i>Polygordius</i> (LPIL)										
<i>Spio filicornis</i>										
<i>Spiophanes bombyx</i>										
Arthropoda										
Malacostraca										
<i>Acanthohaustorius millsii</i>		15.0				15.2				
<i>Ampelisca</i> (LPIL)										
<i>Ampelisca agassizi</i>										
<i>Crassikorophium crassicorne</i>										
<i>Erichthonius brasiliensis</i>										
<i>Gammarus annulatus</i>										
<i>Leptocheirus pinguis</i>										
Lysianassidae (LPIL)										
<i>Protohaustorius</i> sp. B		32.8								
<i>Protohaustorius wigleyi</i>	25.0					25.0				
<i>Psammonyx nobilis</i>										
<i>Pseudunciola obliquua</i>	20.0									
<i>Rhepoxynius hudsoni</i>										
<i>Tanaissus psammophilus</i>						15.2				
<i>Unciola</i> (LPIL)									11.2	
<i>Unciola irrorata</i>			12.4	20.6			69.8		18.2	

Table 5. Summary of assemblage parameters for the Mid-Atlantic Bight stations, 2006.

Station	Total No. Taxa	Total No. Individuals	Density (nos/m ²)	H' Shannon (log e)	d Diversity (log 2)	J' Pielou Evenness
MA06-001	26	425	10625.0	1.77	2.55	0.54
MA06-002	19	25	625.0	2.81	4.05	0.95
MA06-003	41	280	7000.0	2.87	4.14	0.77
MA06-004	24	180	4500.0	2.23	3.21	0.70
MA06-005	51	356	8900.0	2.88	4.16	0.73
MA06-006	41	195	4875.0	2.99	4.31	0.80
MA06-007	31	190	4750.0	1.95	2.82	0.57
MA06-008	20	51	1275.0	2.72	3.92	0.91
MA06-009	43	155	3875.0	3.24	4.67	0.86
MA06-010	28	271	6775.0	2.35	3.39	0.70
MA06-011	13	66	1650.0	1.73	2.49	0.67
MA06-012	34	125	3125.0	3.05	4.40	0.86
MA06-013	19	87	2175.0	2.42	3.50	0.82
MA06-015	18	32	800.0	2.78	4.02	0.96
MA06-017	26	155	3875.0	2.61	3.77	0.80
MA06-018	39	443	11075.0	2.36	3.40	0.64
MA06-019	45	333	8325.0	2.79	4.02	0.73
MA06-020	51	1537	38425.0	2.15	3.10	0.55
MA06-021	30	84	2100.0	2.97	4.29	0.87
MA06-022	48	372	9300.0	2.65	3.82	0.68
MA06-023	12	30	750.0	2.20	3.18	0.89
MA06-024	10	41	1025.0	1.89	2.72	0.82
MA06-025	32	328	8200.0	1.66	2.39	0.48
MA06-026	26	80	2000.0	2.80	4.03	0.86
MA06-027	9	22	550.0	1.87	2.70	0.85
MA06-028	58	1041	26025.0	1.83	2.64	0.45
MA06-029	11	60	1500.0	1.89	2.73	0.79
MA06-031	35	221	5525.0	2.53	3.66	0.71
MA06-032	54	505	12625.0	2.30	3.32	0.58
MA06-033	16	40	1000.0	2.41	3.47	0.87
MA06-034	39	314	7850.0	2.58	3.72	0.70
MA06-035	42	153	3825.0	2.98	4.29	0.80
MA06-036	31	282	7050.0	2.13	3.08	0.62
MA06-037	14	35	875.0	2.26	3.26	0.86
MA06-038	16	92	2300.0	2.32	3.35	0.84
MA06-039	40	410	10250.0	1.59	2.30	0.43
MA06-040	33	793	19825.0	1.83	2.65	0.52
MA06-041	29	170	4250.0	2.48	3.58	0.74
MA06-042	31	727	18175.0	2.48	3.57	0.72
MA06-043	20	109	2725.0	2.06	2.96	0.69
MA06-044	15	47	1175.0	2.14	3.09	0.79
MA06-045	29	197	4925.0	2.37	3.42	0.70
MA06-047	31	331	8275.0	2.30	3.32	0.67
MA06-048	60	445	11125.0	2.83	4.09	0.69
MA06-049	21	79	1975.0	2.41	3.48	0.79
MA06-050	21	169	4225.0	2.19	3.17	0.72
MA06-090	12	72	1800.0	2.09	3.02	0.84

Figure 1. Percent Abundance of major taxonomic groups for NOAA Mid-Atlantic Bight stations, 2006.

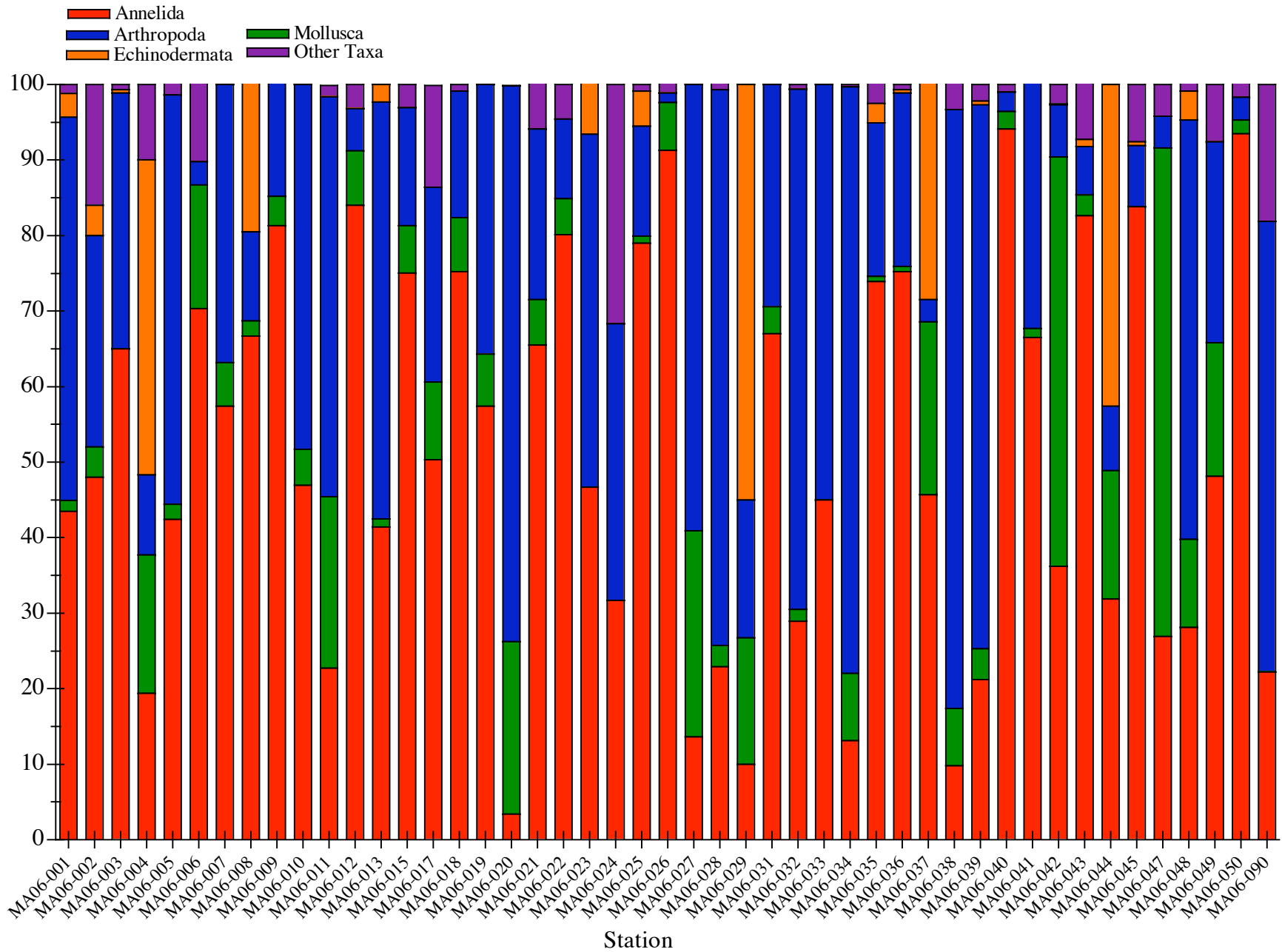


Figure 2. Taxa Richness for the NOAA Mid-Atlantic Bight stations, 2006.

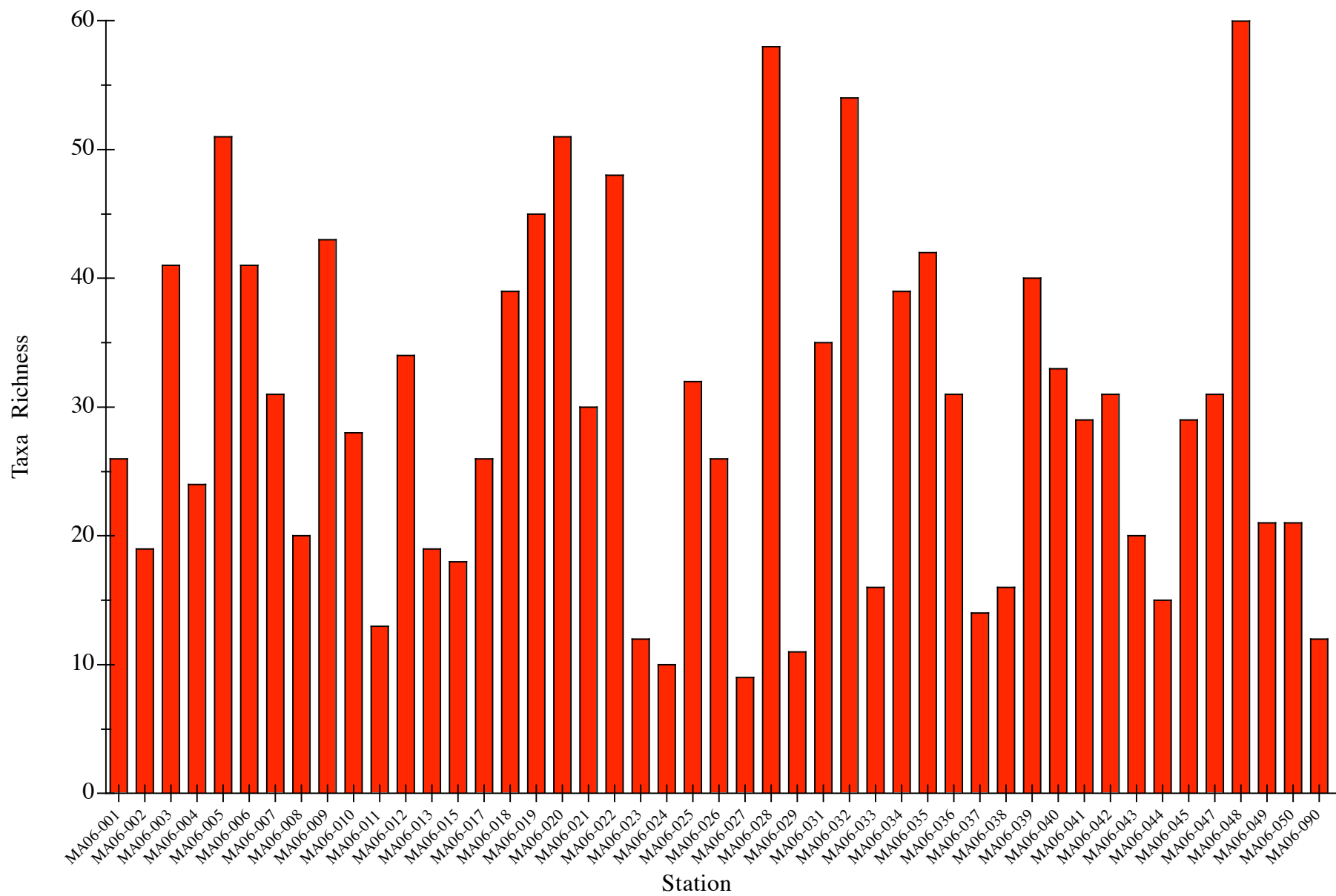


Figure 3. Macroinvertebrate densities for the NOAA Mid-Atlantic Bight stations, 2006.

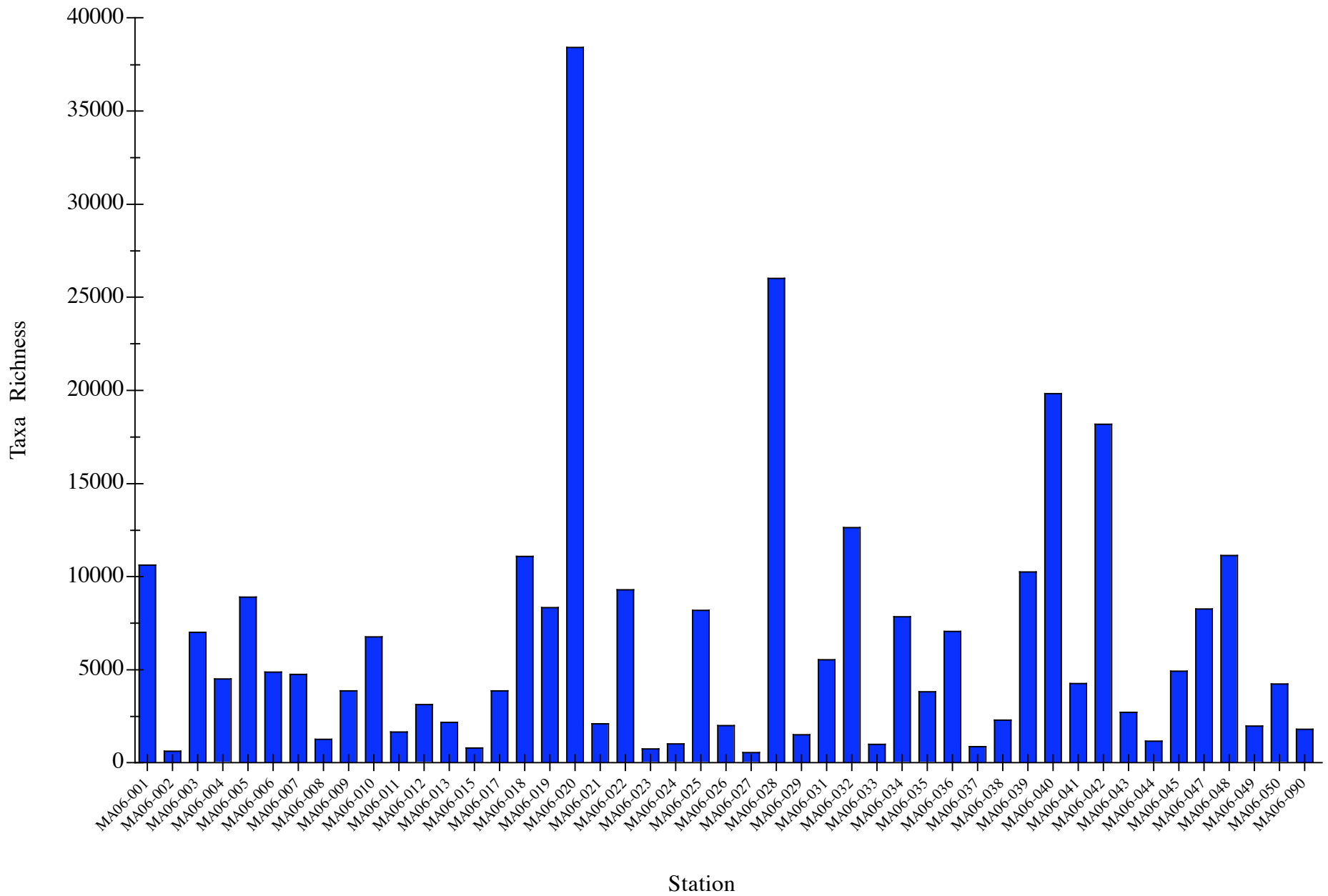


Figure 4. Taxa Diversity (H') data for the NOAA Mid-Atlantic Bight stations, 2006.

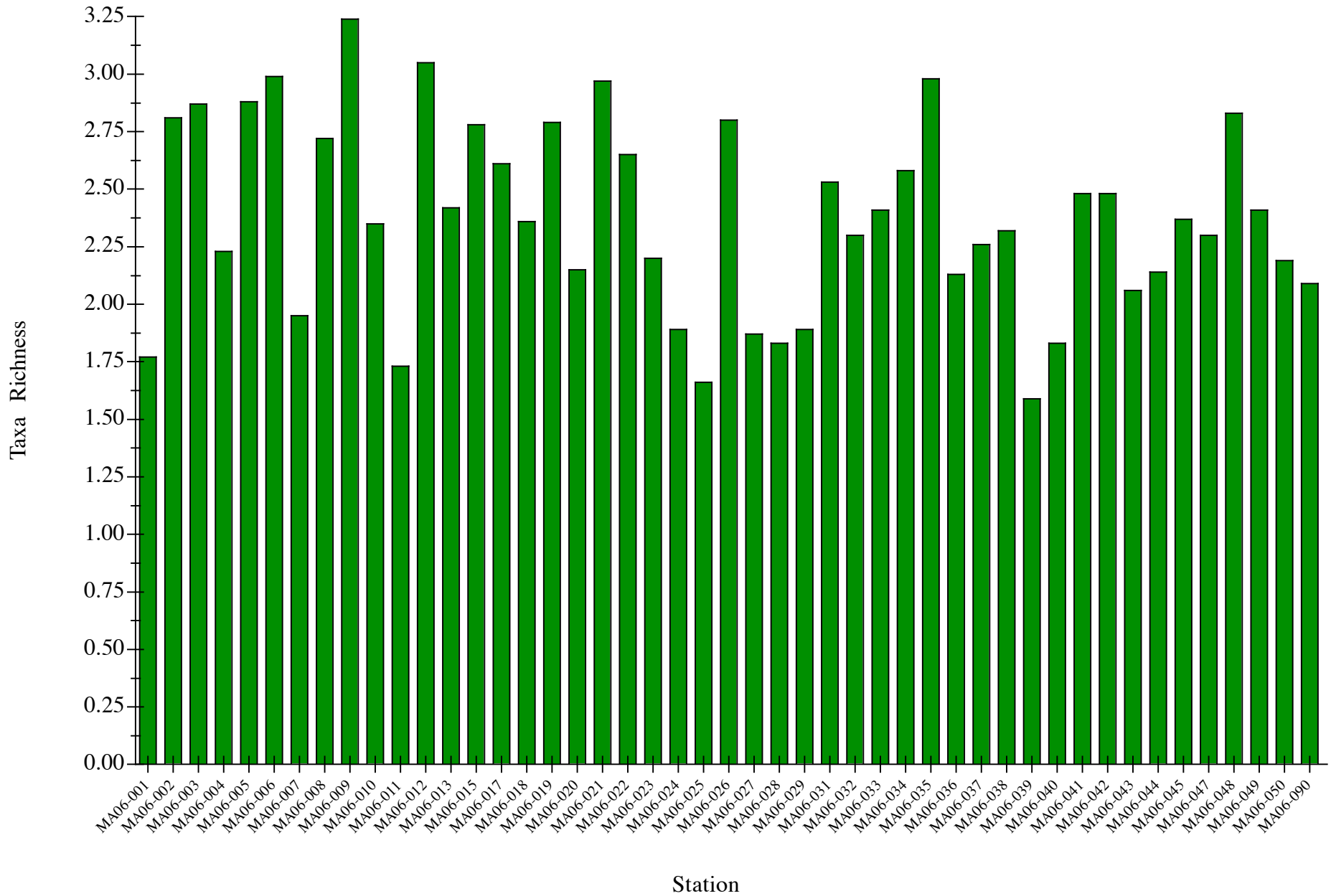
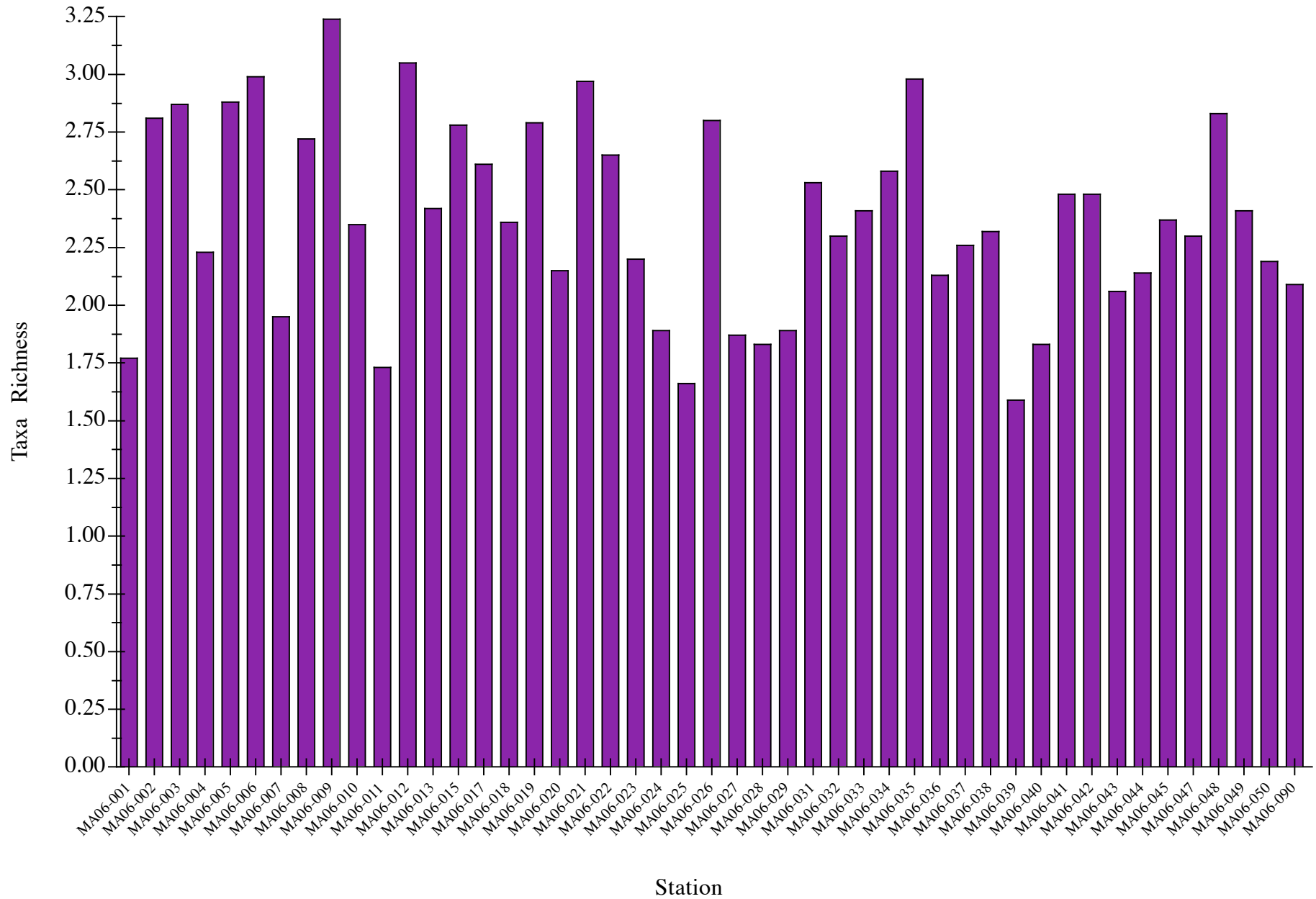


Figure 5. Taxa Evenness (J') data for the NOAA Mid-Atlantic Bight stations, 2006.



APPENDICES

QUALITY ASSURANCE STATEMENT

Client/Project: NOAA

Work Assignment Title: Mid-Atlantic Bight 2006

Task Number: 006

Description of Data Set or Deliverable: 47 Benthic macroinvertebrate samples collected in 2006; Young Dredge grabs

Description of audit and review activities: Judged accuracy rates were well above standard levels for sorting and taxonomy. Laboratory QC reports were completed.

Copies of QC results follow (see attachment). All taxonomic data were entered into the computer and printed. This list was checked for accuracy against original taxonomic data sheets.

Description of outstanding issues or deficiencies which may affect data quality: None

Signature of QA Officer or Reviewer

Date

Signature of Project Manager

Date

QUALITY CONTROL REWORKS

Client/Project: NOAA
Task Number: TO6 - Mid-Atlantic Bight 2006

Sorting Results:	Sample #	% Accuracy
	MA06-049	100%
	MA06-037	100%
	MA06-015	100%
	MA06-032	100%
	MA06-026	95%
	MA06-008	100%
	MA06-012	95%

Taxonomy Results:	Sample #	Taxa	% Accuracy
	MA06-031	Crust./Moll.	96%
	MA06-049	Crust./Moll.	100%
	MA06-019	Crust./Moll.	100%
	MA06-045	Crust./Moll.	97%
	MA06-009	Crust./Moll.	100%
	MA06-018	Annelida	99%
	MA06-007	Annelida	100%
	MA06-002	Annelida	100%
	MA06-044	Annelida	100%
	MA06-043	Annelida	100%

Description of outstanding issues or deficiencies which may affect data quality:

Signature of QA Officer or Reviewer

Date